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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/819,111	03/27/2001	Kirk P. Seward	IL-10625	4312

7590 08/26/2003

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EXAMINER

RHEE, JANE J

ART UNIT

PAPER NUMBER

1772

DATE MAILED: 08/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

AS 14

Office Action Summary

Application No.

09/819,111

Applicant(s)

SEWARD ET AL.

Examiner

Jane J Rhee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-6,8-12,14-22,28 and 32-35 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

- 5) ☐ Claim(s) _____ is/are allowed.

- 6) ☒ Claim(s) 2-6,8-12,14-22,28 and 32-35 is/are rejected.

- 7) ☐ Claim(s) _____ is/are objected to.

- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 2-6, 8-12, 15-16, 28, 34-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Phan et al. (5674242).

Phan et al. discloses a quantity of shape memory alloy and a quantity of shape memory polymer wherein the shape memory alloy having a longitudinally extending coiled configuration with more than one wrap (figure 2c number 34) and the shape memory comprises a cylinder (figure 2b number 32 and 34, figure 2d number 32 and 34). Phan et al. discloses that the shape memory alloy is embedded or positioned within the shape memory polymer (figure 2b number 32, 34). Phan et al. discloses that the coil configuration is longitudinally compressed and retained in the shape memory polymer so as to define a hollow tube cylinder with a wall surface having the coil configuration embedded in the wall surface thereof (figure 2d number 34, 32). Phan et al. discloses that the coil configuration has an axis coaxial with an axis of the hollow tube cylinder (figure 2d number 34). Phan et al. discloses a plurality of structures each having a longitudinally extending coiled configuration of shape memory alloy located within the shape memory polymer comprising a cylinder (figure 2c numbers 34, 32) wherein each coil configuration has a different configuration and the plurality of

structures are in a series configuration. Phan et al. discloses that the quantity of shape memory polymer is a cylinder (figure 2c number 32), wherein the shape memory alloy is wrapped around at least a portion of the shape memory polymer (figure 2c number 34 and 32).

Phan et al. discloses that the quantity of cylindrical shape memory polymer has a closed cylinder configuration (figure 1a number 22). Phan et al. discloses a quantity of shape memory alloy that has a mesh, tubular configuration wherein the quantity of shape memory polymer is a cylinder and wherein the mesh, tubular configuration is embedded in the shape memory polymer (figure 1a number 22 and 18 col. 11 line 18). Phan et al. discloses that the quantity of shape memory alloy has a closed tubular configuration located within the shape memory polymer (figure 1a numbers 18 and 22 col. 11 line 18). Phan et al. discloses an articulated tip or device for reversible fine positioning of an object, comprising; a member constructed of shape memory polymer, wherein, the shape memory polymer comprises a cylinder, at least one member constructed of shape memory alloy located in or adjacent to the member constructed of shape memory polymer, and means for selectively heating the members to cause a change in configuration thereof, whereby the change in configuration results in reversible position thereof (col. 2 lines 34-42).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 14,17-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Phan et al. in view of Maynard (5405337).

Phan et al. discloses the device described above. Phan et al. fail to disclose that the quantity of shape memory alloy is composed of a plurality of shape memory alloy strips. Phan et al. fail to disclose that the shape memory alloy is composed of a plurality of strips, and wherein the strips located in a wall surface of the shape polymer. Phan et al. fail to disclose that the plurality of strips are in the wall surface in a direction selected from the group consisting longitudinal and radial with respect to an axis of the configuration. Phan et al. fail to disclose that the plurality of strips are in a spaced longitudinal relationship. Phan et al. fail to disclose that the plurality of strips are located spaced radial relationships. Phan et al. fail to disclose that the plurality of strips are located in openings in the shape memory polymer. Phan et al. fail to disclose that the shape memory is composed of a plurality of section embedded in the tubular configuration. Maynard teaches that the quantity of shape memory alloy is composed of a plurality of shape memory alloy strips wherein the strips are located in a wall surface or openings of the shape polymer (figure 3a), in a direction selected from the group consisting longitudinal and radial with respect to an axis of the configuration (figure 3a number 105) for the purpose of being able to controllably move a catheter tube or bendable element any direction in three dimensional space (col. 3 lines 28-31).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided Phan et al. with the quantity of

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shape memory alloy that is composed of a plurality of shape memory alloy strips wherein the strips are located in a wall surface or openings of the shape polymer, in a direction selected from the group consisting longitudinal and radial with respect to an axis of the configuration in order to controllably move a catheter tube or bendable element any direction in three dimensional space (col. 3 lines 28-31) as taught by Maynard.

3. Claims 32-33 rejected under 35 U.S.C. 103(a) as being unpatentable over Phan et al. in view of Lee et al. (6059815).

Phan et al. discloses a plurality of units each having a coiled configuration of shape memory alloy and a cylindrical configuration of shape memory polymer, the units being connected in series wherein the coiled configuration has a different configuration (figure 2c number 32,34). Phan et al fail to disclose that the plurality of units each having a coiled configuration of shape memory alloy and a cylindrical configuration of shape memory polymer is connected to a light source via a plurality of optical fibers in a catheter and light control mechanism. Lee et al. teaches a light source via a plurality of optical fibers in catheter and light control mechanism (col. 6 line 35) for the purpose of heating means for shape memory polymer release mechanisms (col. 3 lines 1-2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to have provided Phan et al. with a light source via a plurality of optical fibers in catheter and light control mechanism in order to provide

heating means for shape memory polymer release mechanisms (col. 3 lines 1-2) as taught by Lee et al.

Response to Arguments

4. Applicant's arguments filed 6/6/03 have been fully considered but they are not persuasive.

In response to applicant's 103 argument that the structural elements of the claims now present for examination are not shown by the Phan et al. reference, applicant amended the claim to wherein the shape memory polymer comprises a cylinder instead of the shape memory polymer is cylindrical, Phan et al. does teach that the shape memory polymer comprises a cylinder (figure 2d number 34 and 32 and figure 2b, 32 and 34).

In response to applicant's 102 argument that a helical device does not define a cylinder or a closed tube device, helical is defined as having a shape of a helix, and helix is defined as three-dimensional curve that lies on a cylinder or cone, so that its angle to a plane perpendicular to the axis is constant.¹ Therefore, a helical device does define a cylinder or a closed tube as in figure 2b of the Phan et al. reference.

Conclusion

¹ *The American Heritage® Dictionary of the English Language, Third Edition* copyright © 1992 by Houghton Mifflin Company. Electronic version licensed from INSO Corporation; further reproduction


THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jane J Rhee whose telephone number is 703-605-4959. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 703-308-4251. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

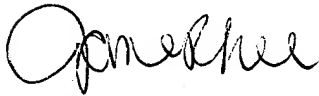

HAROLD PYON
SUPERVISORY PATENT EXAMINER
1772

8/25/03

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A handwritten signature in cursive script, appearing to read "Jane Rhee".

Jane Rhee

August 22, 2003